	Application No.	Applicant(s)
Notice of Allowability	10/566,677	ANNUNZIATO ET AL.
	Examiner	Art Unit
	MICHAEL VU	2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MEP 1308.

1. ☒ This communication is responsive to <u>05/20/2011</u>.

2. ☒ The allowed claim(s) is/are <u>Claims 22-23, 25-27, 30-32, 34-42</u>.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____.

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Notice of Informal Patent Application
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	6. ☒ Interview Summary (PTO-413), Paper No./Mail Date <u>08/12/2011</u> .
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	7. ☒ Examiner's Amendment/Comment
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	8. ☒ Examiner's Statement of Reasons for Allowance
	9. ☐ Other _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

2.   Authorization for this examiner's amendment was given in a telephone interview

        with Attorney of record Bill H. Yu on August 12, 2011.

3.   **Claims 28-29 and 33 have been cancelled.**

4.   **Claim 30 is depending claim 22.**

5.   **Claim 32 is depending claim 22.**

6.   **Claim 34 is depending claim 22.**

        <u>In claim 22,</u> **delete** "A method of planning cellular communication networks,

implemented using a computer, comprising steps of:

        defining a joint cost function to be optimized, the joint cost function being

indicative of a quality of service of location-based services and at least one additional

class of services rendered by the network, the at least one additional class of services

being selected from a group of voice services and data services; and

optimizing, by the computer, the joint cost function".

Insert - - A method of planning a cellular communication ~~networks~~ network, implemented using a computer, comprising steps of:

defining a joint cost function to be optimized, the joint cost function being indicative of a quality of service of location-based services and at least one additional class of services rendered by the cellular communication network, the at least one additional class of services being selected from a group of voice services and data services; and

optimizing, by the computer, the joint cost function,

wherein said joint cost function is optimized by using as input data a location of at least one radiating system associated with one base station in said cellular communication network,

wherein the method is for planning the cellular communication network over a given area, the method further comprising:

subdividing said given area into sub-areas, one of said sub-areas corresponding to a destination sub-area of a new base station in said cellular communication network, the remaining sub-areas being expected to be affected by the introduction of said new base station;

planning said destination sub-area of the new base station also by evaluating effects on said remaining sub-areas; and

evaluating the quality of service resulting from said planning while ascertaining

whether such a level of quality of service is satisfactory,

wherein, if said quality of service is found not to be satisfactory, the method

further comprises a step of re-planning a position of at least one radiating system

associated with one base station in said cellular communication network - -.

In claim 23, delete "The method of claim 22, wherein said joint cost function is

based on measuring a dilution of precision of said network".

Insert - - The method of claim 22, wherein said joint cost function is based on

measuring a dilution of precision of said cellular communication network - -.

In claim 25, delete "The method of claim 22, comprising the steps of:

providing a system for measuring at least one actual network parameter; and

comparing the measurements provided by said measurement system with the

corresponding parameters as planned".

Insert - - The method of claim 22, comprising [[the]] steps of:

providing a measurement system for measuring at least one actual network

parameter; and

comparing [[the]] measurements provided by said measurement system with [[the]] corresponding parameters as planned - -.

In claim 26, delete "The method of claim 22, comprising the step of locating at least one critical point in the network where inadequate quality of service is being provided".

Insert - - The method of claim 22, comprising [[the]] a step of locating at least one critical point in the cellular communication network where inadequate quality of service is being provided - -.

In claim 27, delete "The method of claim 26, comprising the step of generating information items indicative of counter measures to be carried out in said network in order to dispense with at least one critical point".

Insert - - The method of claim 26, comprising [[the]] a step of generating information items indicative of counter measures to be carried out in said cellular communication network in order to dispense with at least one critical point - -.

In claim 30, delete "The method of claim 29, wherein said planning involves computing a point-by-point value of the dilution of precision for all the pixels in the area subject to planning".

Insert - - The method of claim [[29]] 22, wherein said planning involves computing a point-by-point value of [[the]] dilution of precision for all [[the]] pixels in the area subject to planning - -.

In claim 31, delete "The method of claim 30, wherein said planning involves computing a cost function pertaining to location services only, said cost function being a linear combination of said dilution of precision and the average and minimum values thereof".

Insert - - The method of claim 30, wherein said planning involves computing a cost function pertaining to location services only, said cost function being a linear combination of said dilution of precision and [[the]] average and minimum values thereof - -.

In claim 32, delete "The method of claim 29, comprising the step of optimizing a cost function for voice, data and location services".

Insert - - The method of claim [[29]] 22, comprising [[the]] a step of optimizing a cost function for voice, data and location services - -.

In claim 35, delete "The method of claim 25, comprising the steps of:

providing a set of network design parameters;

obtaining from said measurement system a set of measurements corresponding to said set of design parameters; and

locating at least one critical area wherein the quality of service of said location services fails to reach an expected quality of service level as a result of said set of measurements failing to comply with said set of network design parameters".

Insert - - The method of claim 25, comprising [[the]] steps of:

providing a set of network design parameters;

obtaining from said measurement system a set of measurements corresponding to said set of design parameters; and

locating at least one critical area wherein the quality of service of said location services fails to reach an expected quality of service level as a result of said set of measurements failing to comply with said set of network design parameters - -.

In claim 36, delete "The method of claim 35, comprising the steps of:

selecting a service scenario; and

selecting at least one location system as the one most affected by the variations in the network parameters being analyzed".

Insert - - The method of claim 35, comprising [[the]] steps of:

selecting a service scenario; and

selecting at least one location system as the one most affected by [[the]]

variations in [[the]] network parameters being analyzed - -.

In claim 37, delete "The method of claim 35, comprising the step of providing a

list of points in the network characterized by their quality of service".

Insert - - The method of claim 35, comprising [[the]] a step of providing a list of

points in the cellular communication network characterized by their quality of service - -.

In claim 38, delete "The method of claim 35, comprising the steps of generating

and displaying a map of critical points in the area under analysis".

Insert - - The method of claim 35, comprising [[the]] steps of generating and

displaying a map of critical points in the area under analysis - -.

In claim 39, delete "The method of claim 22, comprising the step of providing a

remote deployment module arranged for operating on a sub-set of the network subject

to planning.

Insert - - The method of claim 22, comprising [[the]] a step of providing a remote

deployment module arranged for operating on a sub-set of the cellular communication

network subject to planning - -.

In claim 40, delete "The method of claim 39, comprising the steps of configuring said remote deployment module for collecting local network data, pre-validating such measurements and either comparing said measurements with corresponding planning data of a network design sub-set or sending such measurements to a remote module for further processing".

Insert - - The method of claim 39, comprising [[the]] steps of configuring said remote deployment module for collecting local network data, pre-validating such measurements and either comparing said measurements with corresponding planning data of a network design sub-set or sending such measurements to a remote module for further processing - -.

Allowable Subject Matter

7.   **Claims 22-23, 25-27, 30-32, 34-42** are allowed.

       Claim 22, is allowed because the closest prior arts, Somoza (US 6,336,035) teaches providing software tools with accompanying apparatus for planning, testing, and operating a cell site in a wireless network, and Ephremides (US 5,987,328) teaches the cost function is optimized by one of several optimization methods to give the optimal base station placement, alone or in combination, the limitations of claim 22.

But Somoza and Ephremides fail to anticipate or render obvious, alone or in combination, the features of <u>wherein said joint cost function is optimized by using as input data a location of at least one radiating system associated with one base station in said cellular communication network, wherein the method is for planning the cellular communication network over a given area, the method further comprising: subdividing said given area into sub-areas, one of said sub-areas corresponding to a destination sub-area of a new base station in said cellular communication network, the remaining sub-areas being expected to be affected by the introduction of said new base station; planning said destination sub-area of the new base station also by evaluating effects on said remaining sub-areas; and evaluating the quality of service resulting from said planning while ascertaining whether such a level of quality of service is satisfactory, wherein, if said quality of service is found not to be satisfactory, the method further comprises a step of re-planning a position of at least one radiating system associated with one base station in said cellular communication network</u> as set forth in claim 22.

Dependent Claims 23, 25-27, 30-32, and 34-42 are allowable for the same reason as set forth above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Vu whose telephone number is (571) 272-8131. The examiner can normally be reached on 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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